

**1st Programme Grant Workshop
&
2nd SADCO Workshop**

OPTIMAL CONTROL

5th – 9th September 2011

Preliminary Programme

Summary

This workshop will benefit researchers who wish to acquire expertise in optimal control theory, or to extend their knowledge of this field. It is open to postgraduate students at UK universities and students involved in the SADCO ITN. The first three days will be devoted to tutorial courses in different areas of optimal control and related analysis. In the remaining two days, young researchers will have the opportunity to present their work and interact with their peers, and to hear a number of research level presentations by prominent members of the field.

Dates: Monday 5th – Friday 9th September, 2011

Venue: Imperial College London (South Kensington Campus)

(All lectures will take place in Huxley Building, Queens Gate Entrance)

Organizing Team:

Richard Vinter (Imperial College London)

Michelle Hammond (Imperial College London)

Estelle Bouzat (INRIA)

Provisional Programme

Monday 5th September

9.00 - 10.00

Coffee and Registration

10.00 - 11.30 and 11.45 - 13.00

Tutorial on Non-smooth Analysis and Optimal Control
(Richard Vinter, Imperial College London)

13.00 - 14.00

Lunch

14.00 - 15.30 and 15.45 - 17.00

Tutorial on State Constrained Optimal Control and Applications
(Helmut Maurer, University of Munster)

Tuesday 6th September

10.00 - 11.30 and 11.45 - 13.00

Tutorial on Predictive Control, Computation and Hardware Aspects
(Eric Kerrigan, Imperial College London)

13.00 - 14.00

Lunch

14.00 - 15.30 and 15.45 - 17.00

Tutorial on Differential Games
(Marc Quincampoix, University of Brest)

Wednesday 7th September

10.00 - 11.30 and 11.45 - 13.00

Tutorial on Active Control of Non-Holonomic Systems
(Franco Rampazzo, University of Padova)

13.00 - 14.00

Lunch

FREE AFTERNOON:

(Recommended cultural activities – possibly including a visit to the code-breaking centre Blechley Park, where Alan Turing worked)

Thursday 8th September

9.00 – 9.30

Plenary Talk: 'Strong Solutions of Optimal Control Problems'.
Frederik Bonnans (INRIA)

9.30-10.30 (Univ. Bayreuth)

Lars Grune, 'Economic MPC without Terminal Constraints'.
Christof Buskens, 'Numerical Nonlinear Optimization with WORHP'
10.30 – 11.00

Coffee Break

11.00-12.00 (K. U. Leuven)

Mario Zanon and Sebastien Gros, 'Model Predictive Control of Tethered Planes for Wind Power Generation'.

12.00-13.00 (Univ of Rome 'Sapienza')

Adriano Festa: 'Numerical Solution of an Eikonal Equation on a Graph'.
Maurizio Falcone: 'Recent Results on the Approximation of Optimal Control Problems and Games'.

13.00 – 14.00

Lunch

14.00-15.00 (Univ. P&M Curie, Paris)

Miguel Oliu Barton, 'Interplay of Continuous and Discrete Differential Games'.
Marco Mazzola, 'State Constrained Optimal Control Problems and the Hamilton-Jacobi Equation'.

15.00 – 16.30

Tea Break and Poster Session

Friday 9th September

9.00 – 9.30

Plenary Talk: 'Generalized Gradient Flow of the Distance Function and Homotopic Equivalence'
Piermarco Cannarsa (Univ. of Rome 'Sapienza')

9.30-10.30 (INRIA)

Hasnaa Zidani: TBA

Ariela Briani: TBA

10.30 – 11.00

Coffee Break

11.00-12.00 (Imperial College London)

Richard Vinter, 'Second Order Sufficient Conditions for Non-Unique Minimizers'.

Andrea Boccia, 'Necessary Conditions for Differential Inclusions with State Constraints'.

12.00-13.00 (Univ. Porto)

Sofia Lopez, 'Minimizer Regularity for Higher Order Problems in the Calculus of Variations'.

Margarida Ferreira, 'Optimal Multi-Processes'.

13.00 – 14.00

Lunch

14.00-15.00 (Univ. Padova Team)

Tien Khai Nguyen, 'Overview of the Regularity Properties of the Minimum Time Function'.

Fabio Priuli, 'Patchy Feedback Controls: an Effective Approach to Stabilization and Optimality'.

15.00-16.00 (Industrial teams)

2 talks by VW, Astrium, Astos on applications of optimal control to automotive control, aeronautical control and other areas.

16.00 – 16.30

Tea and closing announcements